



Environmental Resource Management, Inc.

P.O. Box 5305, Bozeman, Montana 59717 Phone (406) 582-8491 rwaller@wispwest.net

March 13, 2015

Mr. Chris Rindal
Rindal Oil Co.
464 Joyland Rd.
Lewistown, MT 59457
406-535-3396

Subject: Remedial Investigation Work Plan
Rindal Oil Co., 464 Joyland Road, Lewistown, MT
DEQ Facility ID No. 14-05108
DEQ Release No. 3676

Dear Mr. Rindal:

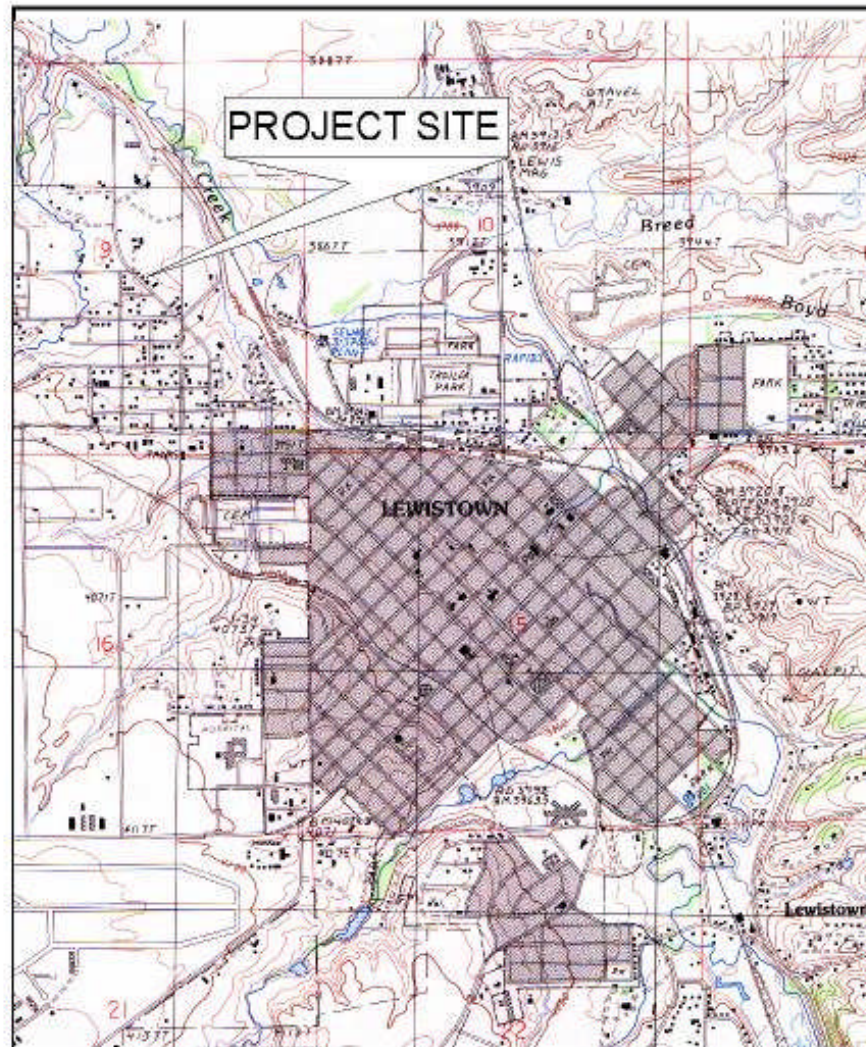
Environmental Resource Management, Inc. (ERM) is pleased to submit this Corrective Action Work Plan to outline activities associated with additional monitoring of subsurface petroleum contamination at the above referenced petroleum release site.

Site Location

The Rindal Oil Co. fuel storage facility is located at 464 Joyland Road in a commercial district outside the city limits of Lewistown, Montana. The project site is situated in the southeast quarter of the southwest quarter of Section 10, Township 15 North, Range 18 East, Montana Principal Meridian as shown in Figure 1.

Site Geology/Hydrogeology

Soils at the project site consist of fine-grained alluvial sediments and gravels associated with Big Spring Creek. Local bedrock consists of the Cretaceous Bearpaw Shale which is encountered at approximately 12 feet below ground surface. Groundwater is first encountered at approximately eight feet below ground surface and is inferred to flow northerly toward Big Spring Creek.



ENVIRONMENTAL RESOURCE
MANAGEMENT, INC.
Consulting Geologists and Environmental Scientists

RINDAL OIL COMPANY
LEWISTOWN, MONTANA
SITE INVESTIGATION
FIGURE 1, REGIONAL SITE LOCATION MAP

Site History and Previous Investigative Work

Petroleum contamination was discovered beneath the project site during removal of two underground petroleum storage tanks containing diesel fuel and unleaded gasoline. The Montana Department of Environmental Quality was notified of the release and requested installation and sampling of soil borings and groundwater monitoring wells to determine the extent and magnitude of the petroleum contamination in soil and groundwater beneath the project site.

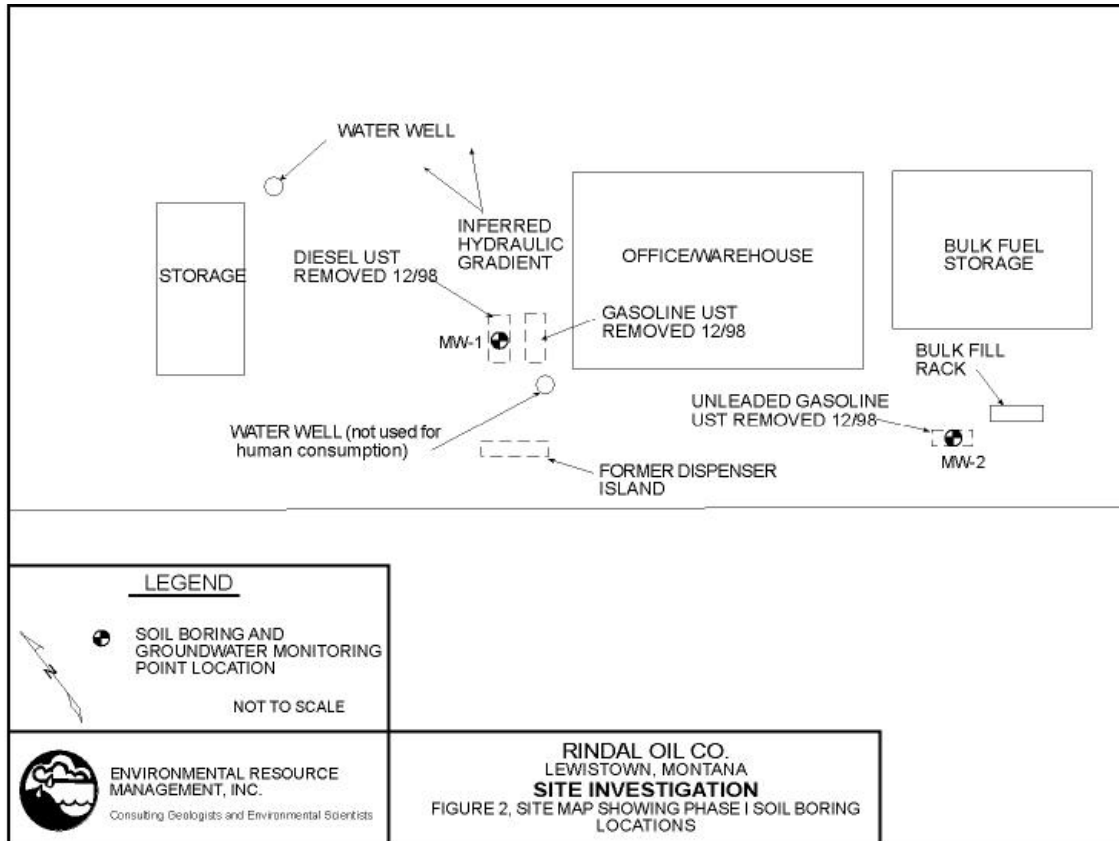
On November 16, 1999, ERM supervised installation of two groundwater sampling points as shown on Figure 2. Both sampling points were installed to approximately nine feet below ground surface using a 24-inch diameter solid stem auger utilizing open-hole completion techniques.

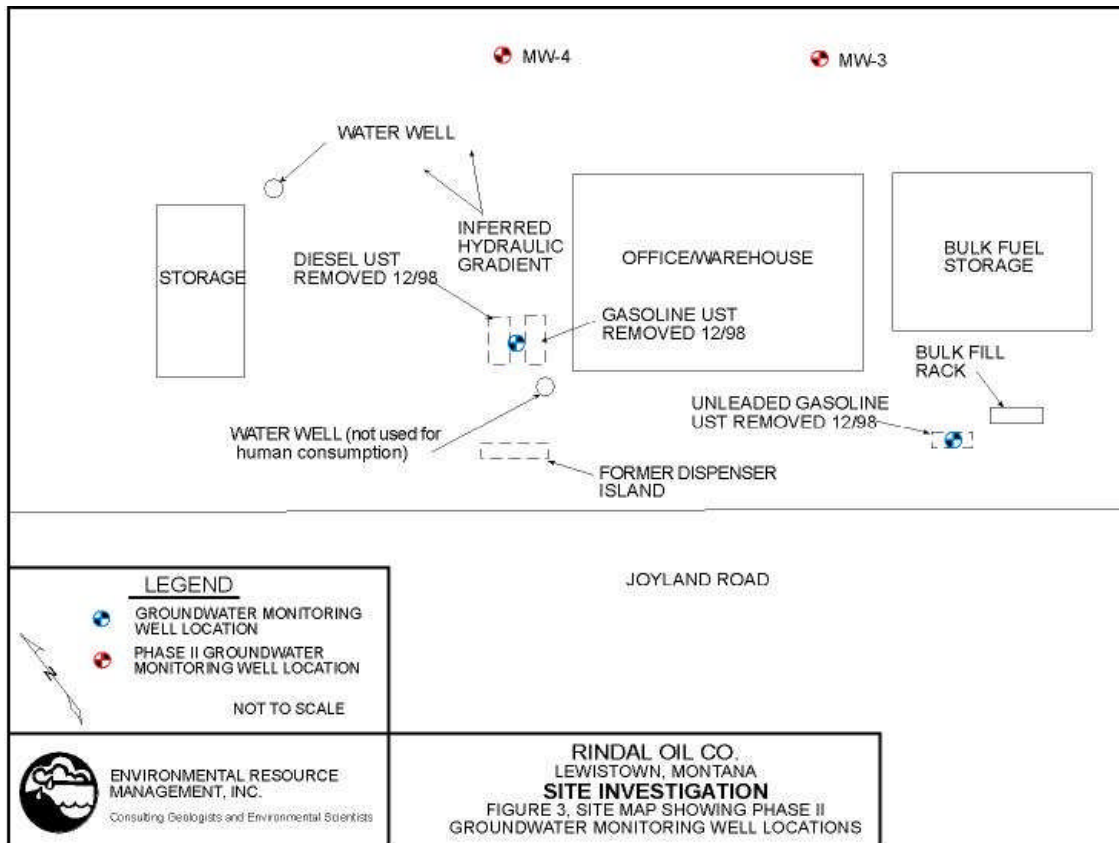
Soil samples collected from the boreholes showed petroleum contamination at the air-water interface at approximately six feet below ground surface. The soil sample for MW-1, installed in the former diesel tank basin, contained 320 mg/kg Total Extractable Hydrocarbons (TEH). The soil sample collected from the boring for MW-2, installed in the former gasoline UST basin, contained 2600 mg/kg Total Petroleum Hydrocarbons (TPH), 17 mg/kg MTBE, 2.8 mg/kg benzene and 534 mg/kg total BTEX.

Groundwater samples were collected from the monitoring points on March 17, 2000 and submitted for Volatile Petroleum Hydrocarbons (VPH) analysis. Highly elevated levels of dissolved gasoline compounds were found in the groundwater sample collected from monitoring point MW-2 with Risk Based Screening Levels (RBSLs) exceeded for MTBE, benzene, toluene, ethylbenzene, and total xylenes. No detectable amounts of petroleum compounds were found in the groundwater sample collected from monitoring well MW-1.

Based on the results of the first phase of investigation, DEQ requested additional work consisting of installation of two groundwater monitoring wells. On January 16, 2007, ERM supervised installation of the additional groundwater monitoring wells at the locations shown on Figure 3. Both of those wells were installed to 20 feet below ground surface using an air rotary drilling rig and, as such, soil samples were not retained for laboratory analysis.

Groundwater monitoring work was attempted in April, 2007 but could not be completed because monitoring points MW-1 and MW-2 could not be located and are presumed to be destroyed.





In a letter dated February 10, 2015, DEQ requested replacement of monitoring points MW-1 and MW-2 and installation of additional soil borings and groundwater monitoring wells to define the extent and magnitude of the petroleum release. Tasks necessary to complete the additional investigative activities are outlined in the following sections.

Scope of Work

Proposed tasks to be performed within the scope of this work plan include installation of up to five groundwater monitoring wells, collection and analysis of soil and groundwater samples, reporting and general project management. These tasks are designed to gain further knowledge regarding the extent and magnitude of soil and groundwater contamination, to identify risks that the petroleum release may pose to human and environmental receptors and to mitigate the petroleum release. All modifications to this work plan will be discussed with and approved by the DEQ project manager prior to implementation.

Groundwater Monitoring Well Installation

Five groundwater monitoring wells will be installed at the locations shown on Figure 4 using a hollow-stem auger drilling rig to further define the extent and magnitude of soil and groundwater contamination beneath the project site.

All of the groundwater monitoring wells will be installed to approximately 15-20 feet below ground surface or at least ten feet into saturated soils and all will be completed with two-inch diameter Schedule 40 flush-threaded 0.020-inch slotted well screen and blank casing. The wells will be screened from total depth to five feet below ground surface with 10-20 mesh Colorado silica filter pack installed in the well annulus to one foot above the top of the well screens. Blank well casing will be brought to the surface and bentonite chips will provide a surface seal above the filter pack. All of the wells will be completed with eight-inch diameter flush mounted access covers.

Well Development/Surveying

Each well will be developed for a minimum of one hour using a submersible pump until at least ten well volumes of groundwater are removed and no further improvements in water clarity are noted. Static water levels will be measured in all of the newly installed monitoring wells following a 24 hour equilibration period after development. Water level measurements will be obtained using a Keck ET-89 electronic water level indicator.



All newly installed and existing monitoring wells will be surveyed for elevation to within ± 0.01 feet by a Montana Registered Land Surveyor and referenced to a local USGS benchmark.

Material Sampling

Drill cores will be logged for lithology, texture, color, moisture and volatile petroleum content. All soil samples will be visually classified for texture using the Unified Soil Classification System (USCS) according to ASTM-D-2488. Soil samples from two foot intervals and from obvious areas of petroleum discoloration will be analyzed for volatile petroleum hydrocarbons using a Photovac Microtip photo ionization detector (PID) with a standard heated jar headspace method. One soil sample corresponding to the interval that exhibits the highest headspace reading and/or one sample from the air-water interface will be analyzed for VPH and for Extractable Petroleum Hydrocarbons (EPH) Screen at Alpine Analytical in Helena, Montana. Soil samples exceeding the EPH Screen limit will be fractionated.

Data Collection

Prior to groundwater sample collection, data will be collected from all of the site monitoring wells and recorded in a field notebook. All of the well covers will be opened and the locking compression caps will be removed upon arrival at the project site. The wells will be allowed to equilibrate to the atmosphere for at least 30 minutes prior to measuring static water levels. Following the equilibration period, a thoroughly decontaminated electronic water level indicator will be used to measure the static water level in each well casing. The water level indicator tip will be scrubbed in an Alconox or similar wash solution and triple rinsed with de-ionized water prior to and following each measurement. All of the depth to water measurements will be collected from a reference point used to determine the casing elevation for each well.

Groundwater Sample Collection and Analysis

Following collection of all of the static water level measurements, groundwater sample purging will commence using a peristaltic pump. Purge water from each monitoring well will be constantly monitored for pH, conductivity, temperature and dissolved oxygen content and oxygen reduction potential using a YSI Instruments field meter. Groundwater sample collection will begin when the all or the majority of the indicator parameter values stabilize. Each groundwater sample will be collected using a disposable bailer to extract groundwater from the upper 2-3 feet of the water column.

Each VPH groundwater sample will be decanted into 40-milliliter amber glass sample vials, preserved with hydrochloric acid and sealed with a Teflon cap. EPH groundwater samples will be decanted in to one liter amber glass jars and preserved with sulfuric acid. Groundwater samples will be placed on ice while awaiting shipment to the analytical laboratory. Sample shipment will occur through Fed Ex Priority Overnight. All of the collected groundwater samples will be analyzed for VPH, EPH Screen and for 1,2 DCE using EPA Method 8260B and for EDB using EPA Method 8011.

Receptor Survey

An assessment of potential receptors of petroleum contamination will be performed and will include examining the presence of utility corridors, basements, surface waters and domestic groundwater wells. Identified subgrade spaces that have a potential for petroleum vapor accumulation will be monitored using a PID.

Remedial Alternatives Analysis

An RAA will be completed to identify applicable remedial technologies that will likely be successful in bringing the petroleum release at the Rindal Oil facility to closure. The results of the RAA will be included in the final report.

Investigative Methods

Methods practiced during this investigation will follow generally accepted practices of similar consulting firms in the same geographical area. Quality Assurance/ Quality Control methods will be employed throughout all phases of this investigation to ensure meaningful and reproducible results and data.

Investigation Derived Waste

Drill cuttings, excess sample materials, drilling fluids, and water removed from a well during installation, development, and aquifer testing and all other investigation derived wastes will be disposed of according to all applicable local, state and federal laws.

Health and Safety

Health and safety issues will be addressed throughout this investigation to prevent exposure of site workers and other onsite personnel to potentially hazardous situations and chemical compounds. Site specific health and safety precautions and information will be contained in a Health and Safety Plan which will remain onsite during all field activities.

Project Costs

Project costs are provided below. Groundwater monitoring costs are provided on the attached Unit Cost Worksheets.

COST ESTIMATE--REMEDIAL INVESTIGATION, RINDAL OIL, LEWISTOWN, MT

Task 1-Well Installation

Project management	3.0 hrs @ \$110/hr	\$330.00
Onsite supervision, Scientist II	20.0 hrs @ \$90/hr	1800.00
PID rental	2 days @ \$74/day	148.00
Laboratory analysis	5 VPH/EPH soil @ \$205 ea.	1025.00
Sample handling fee	5 samples @ \$10 ea.	50.00
Mobilization, RT from Bozeman	6.0 hrs @ \$90/hr	540.00
Mileage, 4WD field truck	324 miles @ \$0.62/mile	200.88
Per Diem	2 days @ \$23/day	46.00
Lodging	2 nights @ \$80/night	160.00
Surveying	estimated	900.00
Drilling services	Haz Tech Drilling bid	6423.00

Task 2-Reporting

RIR-02 Report preparation	\$2760.00
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<u>TOTAL ESTIMATED COST</u>	<u>\$14,382.88</u>
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Limitations

This work was performed in accordance with generally accepted practices of other consulting firms conducting similar studies. ERM observed that degree of care and skill generally exercised by other consultants under similar conditions. ERM's findings and conclusions must not be considered as scientific certainties, but as opinions based upon our professional judgment based upon the data gathered during the course of this investigation. Other than this, no warranty is implied or intended.

Submitted by
Environmental Resource Management, Inc.

Robert H. Waller
Project Geologist

cc: DEQ-PTCS
MPTRCB

attachments: Unit Cost Worksheet, drill bids



Environmental Resource Management, Inc.

P.O. Box 5305, Bozeman, Montana 59717 Phone (406) 582-8491 rwaller@wispwest.net

GROUNDWATER MONITORING AND SAMPLING UNIT COST WORKSHEET

Contractor Information

Company Name: ERM, Inc.

Address: P.O. Box 5305

City, State, Zip: Bozeman, MT 59717

Phone: 406.582.8491

Cost Estimator: Bob Waller

Project Information

Site Name: Rindal Oil Co.

Facility ID # 14-05108

Address: 464 Joyland Rd.

Release # 3676

City: Lewistown

Monitoring Well Details

Total Number of Wells at Site 7

Number of Wells to be monitored _____

Number of Wells to be monitored/sampled 7

Well Casing Diameter (inches) 2"

Average Depth to Groundwater (ft) 5-8'

Average Depth of Wells (ft) 20'

Monitoring/Sampling Interval

Estimated Start Date: 7/15

Quarterly (# of events _____)

Semi-annual (# of events _____)

x Annual (# of events 1)

Other (please specify) _____

Well Purging Method

Hand bailing

X Peristaltic Pump

Submersible Pump

ρ Micropurge

ρ No Purge

ρ Other (please specify) _____

Task	Unit Cost	Number of Units	Total Cost
<u>Project Management</u>	\$110.00/hr	1	\$110.00
<u>Mobilization/Demobilization⁽¹⁾</u>			
Mobilization/Demobilization	\$2.40/mile	334	\$801.60
<u>Field Work</u>			
Water Level Measurements ⁽²⁾ (unsampled wells only)	\$/well		\$
Well Monitoring/Purging/Sampling ⁽³⁾	\$172.00/well	7	\$1204.00
Other Service (please specify) _____			\$
Other Service (please specify) _____			\$
<u>Report Preparation⁽⁴⁾</u>			
Quarterly/Semi-annual	\$/report		\$
Annual	/report		\$
Other (please specify) _____	\$/report		\$
Subtotal Project Expense			\$2115.60

The costs below are estimates, not bids. Lodging and laboratory analysis will be paid at actual cost when documented by receipts/invoices.

<u>Per Diem</u> (specify number of individuals__1__)			
Per Diem: Motel	\$80/person per day	1	\$80.00
Per Diem: Food	\$23.00/person per day	2	\$46.00
<u>Laboratory Analysis⁽⁵⁾</u>			
Volatile Petroleum Hydrocarbons (VPH)	\$135/sample	7	\$945.00
Extractable Petroleum Hydrocarbons (EPH) EPH "screen"	\$70/sample	7	\$490.00
EPH "fractions"	/sample		\$
1,2 DCE 8260B	150/sample	7	\$1050.00
EDB 8011	200/sample	7	\$1400.00
PTRCB sampling fee ⁽⁶⁾	\$10/sample	7	\$170.00
TOTAL PROJECT EXPENSE			\$6296.60
Estimated Project Expense per event (total project cost / # of events)			\$6292.60

HAZTECH Drilling, Inc.



P.O. Box 30622
2910 Hannon Road, Suite #6
Billings, MT 59107
Phone: 406-896-1164 or 800-359-1502
Fax: 406-896-1462

Proposal

TO:	Environmental Resource Management, Inc.	DATE:	3/9/2015
ATTN:	Bob Waller	PROJECT:	Job Number-99-174
	P.O. Box 5306		Lewistown, MT
	Bozeman, MT 59717		
	Ph-406-582-8491-Cell	TERMS:	Net 30 Days
	Description:		
	5-20ft wells with 15ft of .020 screen and		
	flush mount covers.		

	UNITS EST.	UNIT PRICE	AMOUNT EST.
*****	*****	*****	*****
Mob/ Demob, Per Mile	260	\$3.50	\$910.00
Support Truck, Per Day	3	\$75.00	\$225.00
Perdiem, Per Crew Day	3	\$46.00	\$138.00
Lodging, Per Night, Estimated	2	\$250.00	\$500.00
Auger Drilling, Per Ft	100	\$17.50	\$1,750.00
Well Installation, Per Ft	100	\$24.50	\$2,450.00
Flush Mount Vaults with Concrete, Each	5	\$90.00	\$450.00
Standby, Per Hr	0	\$150.00	\$0.00

	ESTIMATED TOTAL:		\$6,423.00

Notes:

- 1) Client is responsible to clear location of utilities.
- 2) Client is responsible for disposal of drill cuttings.
- 3) Client will be invoiced only the amounts used.
- 4) We assume that site is accessible by truck mount drill rig.

Proposal By: Paul Bray

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Rindal Oil Co., Lewistown, MT
Facility ID No. 14-05108
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